Abstract

Title: Relation between motor skills, physical fitness and body composition in preschoolers age 4.

Objectives: The aim of this thesis is to determinate if there are any significant relationships between motor skills, physical fitness and body composition in preschool age. Furthermore, to determine the degree of these relationships and their stability over time using repeated measures.

Methods: The research group consisted of n=17 preschool-age children. For the evaluation of body composition we used the method according to Matiegka (1921) The level of gross motor skills was assessed with a TGMD-2 (Ulrich, 2000). To determine the level of physical fitness, a combination of agility test 4x5 metre, multistage 20-metre shuttle run, standing long jump, sit-ups, sit-and-reach and throw ball with alternative hands. Basic descriptive statistics, normality tests, Pearson correlation, paired T-test and regression analysis with level of clinical significance were used to analyze obtained data.

Results: The results of our study did not find any clinically significant relationships between the level of motor skills, physical fitness and body composition. The largest relationship was found between the 4x5 m agility test and the jump within TGMD-2 ($r = -0.68$). We found the highest stability (reliability) in the parameters of body composition (skeleton $r = 0.71$; fat $r = 0.78$; muscles $r = 0.79$). However, none of the values reached our required limit of significance (0.8). The results of the regression analysis showed that the overall score of physical fitness assessment is a significant predictor of the amount of body fat ($p < 0.05$). The findings of this study indicate a relatively high instability of parameters standardly used to assess motor or somatic development in preschool children. It is therefore questionable whether the results of the cross-sectional studies, taking into account our findings, actually present valid results.

Keywords: preschool age, motor skills, physical fitness, body composition